

4980 Sunset Drive

Environmental Impact Study (EIS)

Project Location: 4980 Sunset Drive, Elgin County

Prepared for: Wastell Developments Inc. 5-1895 Blue Heron Drive London, ON

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Engineers, Scientists, Surveyors.



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1.0 Introduction

MTE has been retained by Wastell Homes (the Proponent) to complete an Environmental Impact Study (EIS) for a proposed commercial development at 4980 Sunset Drive, Port Stanley in the Municipality of Central Elgin and Elgin County [the 'Subject Lands'; Figure 1] in support of a Draft Plan of the development.

The Subject Lands are a 0.75 ha (7,536 m²) property that currently consists of meadow and one existing commercial building located on the western edge of the property. The majority of the Subject Lands are designated as natural heritage (Schedules A2 and G, Municipality of Central Elgin) [Figures 2 and 3] with a small portion, on the western edge of the Subject Lands, designated as Commercial – Industrial (Schedule G, Municipality of Central Elgin).

A 120 m Study Area of Adjacent Lands has been applied to the Subject Lands for the purpose of evaluating contiguous or nearby natural features. The Adjacent Lands include a locally significant wetland to the north (across Sunset Drive), fragmented woodland to the east (containing commercial and residential properties), a woodland to the south, and a commercial property to the west.

An Environmental Impact Study (EIS) is required when development or site alteration is proposed within or adjacent to an area designated as Natural Heritage on the Municipality of Central Elgin Land Use Schedules or within 50 m of an Earth Science ANSI shown on Schedule A2 (Municipality of Central Elgin). Unmapped natural features (e.g. habitat for threatened or endangered species) may also trigger an EIS if found within the Subject Lands, as natural heritage policies are applicable to natural features whether they are known or not. As a portion of the Subject Lands are designated as natural heritage, an EIS is required to demonstrate that proposed development and/or site alteration will not have a negative impact on natural heritage features or their ecological functions.

In Central Elgin the EIS is generally preceded by an Issues Scoping Report (ISR) which assesses the significance of the existing natural heritage system features and functions. This report combines the requirements of the ISR, as outlined in OP Policy 3.4.1a), with those of an EIS, as described in OP Policies 3.4.2.1-3.4.2.4, to identify natural heritage features within and adjacent to the Subject Lands, and provide an assessment of potential impacts to biological or physical features and functions for the avoidance and/or mitigation of impacts, environmental management strategies and monitoring requirements to protect the identified significant natural heritage features and functions.

2.0 Natural Heritage Policy Overview

The following provincial and municipal legislation and policies were reviewed to inform the evaluation of significant natural heritage features and assessment of potential impacts.

2.1 Planning Act

The Provincial Policy Statement (PPS; MMAH, 2020) was issued under the *Planning Act, 1990* to provide direction to regional and local municipalities regarding planning policy, ensuring that decisions made by planning authorities were consistent with provincial policy. With respect to natural heritage features and resources, the PPS defines seven natural heritage features:

- Significant wetlands and significant coastal wetlands
- Significant woodlands
- Significant valleylands
- Significant wildlife habitat (SWH)
- Significant areas of natural and scientific interest (ANSI's)
- Fish habitat, and,
- Habitat of endangered and threatened species

These features are described in the Natural Heritage Reference Manual (MNR, 2010), a technical document intended to support the PPS which also provides guidance to help assess these natural heritage features. Section 2.1.4 of the PPS states that development and site alteration are not permitted in significant wetlands or significant coastal wetlands in Ecoregion 7E, where the Subject Lands are located. Section 2.1.5 states that development and site alteration shall not be permitted in significant woodlands, significant valleylands, SWH or ANSI's unless it has been demonstrated that there will be no negative impacts on the features or their ecological functions. Development and site alteration are not permitted in fish habitat (Section 2.1.6) or habitat of endangered or threatened species (Section 2.1.7), except in accordance with provincial and federal legislation. Development and site alteration are also not permitted on lands adjacent to the natural heritage features outlined in section 2.1.4-2.1.6 unless it has been demonstrated that there will be no negative so their ecological functions.

2.2 Municipality of Central Elgin Official Plan (2013)

The Official Plan of the Municipality of Central Elgin includes policies that guide growth, economic development and the protection of natural heritage features across the municipality. With respect to Natural Heritage (Section 3.1.1), new permitted uses, or expansions/enlargements to existing uses, buildings or structures within a Natural Heritage designation that require a Planning Act approval may be permitted only if it can be demonstrated through an Environmental Impact Study (EIS) that there will be no negative impacts to the natural heritage features and/or their ecological functions.

The majority of the Subject Lands are designated as Natural Heritage with an area along the Subject Land's western edge being designated as Commercial – Industrial by the Central Elgin Official Plan (Schedule G, 2013). The Adjacent Lands are designated as Residential (south and east), Natural Heritage (south and north), Agricultural (north), and Commercial - Industrial (west) (Schedule G, 2013).

2.3 County of Elgin Official Plan (2015)

The purpose of the Official Plan of the County of Elgin (Final consolidation, November 2015) is to provide direction and a framework for managing growth and land use decisions within the County through the establishment of a broad, upper tier policy framework that provides guidance to local municipalities, by implementation of the PPS at the County level, and by facilitating coordination and coordination amongst local municipalities and the County on planning and development issues. Section A4.2 describes the County's strategic objective to protect natural heritage features and areas, and their associated ecological functions.

Part D of the Official Plan provides more specific policies to achieve this objective, such as criteria for defining natural heritage significance (e.g. significant woodlands) and identifying how natural heritage features should be considered in the context of development and site alteration. Development and site alteration is not permitted in significant habitat of endangered or threatened species, significant wetlands and significant coastal wetlands (D.1.2.6a). Development and site alteration is not permitted in significant valleylands, SWH and ANSIs (D.1.2.6b) or Adjacent Lands (D1.2.7) unless it has been demonstrated through an EIS that there will be no negative impacts on the natural features or their ecological functions. Appendix B of the Official Plan provides the County's requirements for an EIS.

2.4 Kettle Creek Conservation Authority

The Kettle Creek Conservation Authority (KCCA) regulates lands within its watershed under Ontario Regulation 181/06, pursuant to Section 28 of the *Conservation Authorities Act*. The KCCA has jurisdiction over riverine flooding and erosion hazards, wetlands and the surrounding area, and requires that landowners obtain written approval from the Authority prior to undertaking any site alteration or development within the regulation limit.

The entire Subject Lands are within the regulation limit of the Kettle Creek Conservation Authority (KCCA) [Figure 4] This regulation limit is associated with the Hazard Area (slope) to the south of the Subject Lands.

2.5 Endangered Species Act

The Endangered Species Act, 2007 (ESA) protects species listed as threatened, endangered or extirpated in Ontario from killing, harm, harassment or possession, and also protects their habitats from damage or destruction. All species are provided with general habitat protection for areas the species depend on to carry out their life processes, such as reproduction, rearing, hibernation, migration or feeding. Activities that may impact a protected species or its habitat require prior authorization from the Ministry of Environment, Conservation and Parks (MECP), unless the activities are exempt under Ontario Regulation 242/08. The provincial status of species in Ontario is determined by the Committee on the Status of Species at Risk in Ontario (COSSARO) and documented in the Species at Risk in Ontario (SARO) List.

2.6 Additional Relevant Legislation

During the implementation phase of the project, additional natural heritage focused legislation may need to be considered.

2.6.1 Fish and Wildlife Conservation Act

The Fish and Wildlife Conservation Act, 1997 (FWCA) regulates hunting, trapping, fishing, and related activities in Ontario in order to address the conservation of fish and wildlife resources in the province, including mammals, birds, reptiles, amphibians and fish. Under the Act, a person that hunts or traps wildlife requires a license administered by the Ministry of Natural Resources and Forestry (MNRF). Deliberate capture of wildlife or fish for the purpose of salvage and relocation is regulated under the FWCA.

2.6.2 Migratory Birds Convention Act

The federal *Migratory Birds Convention Act, 1994* aims to protect and conserve migratory birds as populations and individual birds in Canada and the United States. No work is permitted to proceed that would result in the destruction of active nests (nests with eggs or young birds), or the wounding or killing of bird species protected under the Migratory Birds Convention Act, 1994 and/or Regulations under that Act. Many bird species not protected by the MBCA (e.g. raptors) are protected under the FWCA.

3.0 Natural Heritage Features and Functions

3.1 Designated Natural Features

The Land Information Ontario (LIO) mapping (MNRF, 2019), Natural Heritage Information Centre (NHIC) online database (2021), and municipal official plan schedules were reviewed for natural heritage features on the Subject Lands and 120 adjacent lands. There are no mapped natural heritage features present within the Subject Lands.

The provincially significant Port Stanley Till Earth Science Area of Natural and Scientific Interest (ANSI) is located northwest of the Subject Lands across a 15 m wide roadway (Sunset Drive). A locally significant wetland, the Moore Water Garden (KC 5) swamp, is also located to the northwest of the Subject Lands overlapping the Port Stanley Till Earth Science ANSI. The portion of the wetland located Adjacent to the Subject Lands is a 16 - 25 m wide section immediately north of the Sunset Drive roadway [Figure 2].

Woodlands adjacent the Subject Property to the south are mapped as part of the County's Natural Heritage System on Map Appendix '1' of the County of Elgin Official Plan, and as "wooded area" on Schedule A2 of the Central Elgin Official Plan [Figure 2].

3.2 Species at Risk Records

For this EIS, Protected Species are those listed as Endangered or Threatened on the Species at Risk in Ontario (SARO) List of the ESA. Only Protected Species and their habitats receive protection under the ESA.

Species of Conservation Concern (SOCC) are those listed as Special Concern on the SARO list and species with a provincial ranking of S1-S3. Provincial status rankings for plants, vegetation communities, and wildlife are based on the number of occurrences in Ontario and have the following meanings:

- S1: critically imperiled; often fewer than 5 occurrences
- S2: imperiled; often fewer than 20 occurrences
- S3: vulnerable; often fewer than 80 occurrences
- S4: apparently secure
- S5: secure
- S?: unranked, or, if following a ranking, rank uncertain (e.g. S3?)

Provincial status rankings are established by the NHIC and do not provide an indication of regional abundance or rarity (i.e. species uncommon in the province may still be locally abundant in some regions).

A review of the Ontario Natural Heritage Information Centre (NHIC), Ontario Breeding Bird Atlas (OBBA), Ontario Reptile and Amphibian Atlas database, and Citizen Science sources (iNaturalist and eBird) was conducted to identify Protected Species and SOCC that may be present in the area of the Subject Lands. The areas included in the background review vary, including 10 km Atlas squares (OBBA and Ontario Reptile/Amphibian Atlas), a 1 km Atlas square (NHIC), and the 120 m Adjacent Lands (Citizen Science sources). It should be noted that OBBA occurrence data are from 2001-2005, and the dates of NHIC records are unknown. The remainder of the records are from within the past 10 years. The observation dates are provided for each species where possible. These sources display data for a broad area and therefore provide only a general potential for species presence on or near the Subject Lands. Protected Species with occurrence records within 10km of the Subject Lands are provided in Table 1.

Table 1. Review of Protected Species Occurrence F	Records (Potential Withi	n 10 km of the Subject
Lands)	-	-

Common Name	Scientific Name	ESA (SARO List)	S-rank (NHIC)
Acadian Flycatcher	Empidonax virescens	END	S1B
American Badger (Southwestern Ontario population)	Taxidea taxus jacksoni	END	S1
American Chestnut	Castanea dentata	END	S1S2
American Ginseng	Panax quinquefolius	END	S2
Bank Swallow	Riparia riparia	THR	S4B
Barn Swallow	Hirundo rustica	THR	S4B
Bobolink	Dolichonyx oryzivorus	THR	S4B
Butternut	Juglans cinerea	END	S2?
Chimney Swift	Chaetura pelagica	THR	S3B
Eastern False Rue-anemone	Enemion biternatum	THR	S2
Eastern Meadowlark	Sturnella magna	THR	S4B,S3N
Eastern Prickly-pear Cactus	Opuntia cespitosa	END	S1
Louisiana Waterthrush	Parkesia motacilla	THR	S2B
Massasauga (Carolinian population)	Sistrurus catenatus pop. 2	END	S1
Northern Bobwhite	Colinus virginianus	END	S1?
Red-headed Woodpecker	Melanerpes erythrocephalus	END	S3
Spiny Softshell	Apalone spinifera	END	S2
Yellow-breasted Chat	lcteria virens	END	S1B

A number of relatively widespread species and habitats protected under the ESA are underrepresented within the NHIC Database and Citizen Science records. For this reason, Little Brown

Myotis [END], Northern Myotis [END], and Tri-coloured Bat [END] have been added to the background list of potential species.

Habitat potential for SAR on the Subject Lands was evaluated using a combination of desktop review, satellite photo interpretation and field investigations. The full screening lists of Protected Species and SOCC are provided in Appendix A and results are discussed in Sections 3.4 and 3.5.

3.3 Field Investigations

In addition to the targeted surveys listed below, incidental observations of wildlife and general habitat characteristics were recorded during all site visits. Field investigations were conducted within the Subject Lands and adjacent woodland to the south between May and August in 2022 to classify vegetation communities, inventory plant species, document breeding birds, identify potential habitat for Protected Species, and record incidental observations of wildlife. Natural heritage features on Adjacent Lands were assess from the edge of the property.

These investigations were completed to support the assessment of potential impacts to natural heritage features and species at risk in the context of provincial and municipal policy. A summary of field investigations undertaken as part of the EIS is provided in Table 2.

Field Investigation	Date	MTE Personnel
Ecological Land Classification (ELC)	May 11, 2022	Will Huys, Tanya Cooper
Bat Habitat Assessment	May 11, 2022	Will Huys, Tanya Cooper
Spring Botanical Inventory	May 11, 2022	Will Huys, Tanya Cooper
Summer Botanical Inventory	August 9, 2022	Tanya Cooper, Allie Leadbetter
Butternut Health Assessment (BHA)	July 27, 2022	Will Huys, Tanya Cooper
Breeding Bird (Survey #1)	June 1, 2022	Will Huys
Breeding Birds (Survey #2)	June 16, 2022	Will Huys
Mammal Den Surveys (trail camera)	May 19 th – 21 st and June 7 – June 15, 2022	Will Huys, Tanya Cooper, Dan Nydam

Table 2. Summary of field investigations undertaken on the Subject and Adjacent Lands

3.3.1 Vegetation Communities

Vegetation communities on and within approximately 30 metres of the Subject Lands were surveyed on May 11th, 2022 by MTE Plant and Wildlife Technicians Will Huys, certified to conduct ELC in Southern Ontario, and Tanya Cooper using protocols outlined in the Ecological Land Classification (ELC) System for Southern Ontario (Lee et al., 1998). Provincial significance of vegetation communities is based on the rankings assigned by the NHIC (2020).

The Subject Lands consist entirely of Mineral Cultural Meadow (CUM1) with an established gravel footpath (2-3 m wide) dividing the majority of the vegetation community into two sections [Figure 5].

Natural vegetation communities found on Adjacent Lands and within the Study Area include Mineral Cultural Woodland (CUW1), Mineral Cultural Thicket (CUT1), and Swamp Thicket (SWT).

- The Mineral Cultural Woodland's canopy is dominated by Trembling Aspen along with Manitoba Maple and Black Walnut. The understory consists of Tartarian Honeysuckle, Gray Dogwood, and Allegheny Blackberry. This community has many dead and fallen ash that contributed to the loss of canopy cover and a ground layer that is dominated by non-native and invasive species.
- The Cultural Thicket and Swamp Thicket are found across the Sunset Drive roadway. The Swamp Thicket is part of the Moore Water Garden (KC 5) swamp.

Other vegetation surrounding the Subject Lands consists of fragmented woodlands with residential properties (south and east of Subject Lands), agricultural fields (north of Subject Lands), and commercial – Industrial property (west).

3.3.2 Floral Inventory

A two-season (Spring and Summer) botanical inventory was undertaken on the Subject Lands and adjacent woodland (CUW1) on May 11 and August 9, 2022. The status of all plant species is based on the provincial NHIC database (MNRF, 2020) and the list of vascular plants for the Carolinian Zone (Oldham, 2017).

A total of 123 vascular plant species were recorded within the Subject Lands and adjacent woodland of which 78 (63%) are native and 45 (37%) are introduced. A total of 21 (17%) vascular

plant species identified within the Subject and/or adjacent property are considered to be invasive species.

No Protected Species or plant SOCC were observed on the Subject Lands. Butternut (END, S2?) was found on adjacent lands, with the nearest individual approximately 100 m away. No other plant Protected Species or SOCC were observed within the Study Area.

A complete list of vascular plant species observed within the Subject and Adjacent Lands is provided in Appendix B.

3.3.3 Breeding Bird Surveys

Breeding bird surveys were completed on the Subject Lands on June 1 and June 16, 2022, guided by the protocols in the Ontario Breeding Bird Atlas (OBBA) (Cadman et al., 2007). A combination of wandering transects (area searching) and point counts in all vegetation communities on the Subject Lands and adjacent woodland were used to characterize the breeding bird communities on the Subject Lands. A search for Barn Swallow nests was also completed for the abandoned building on the Subject Lands. The highest level of breeding evidence was recorded for each species using codes from the Ontario Breeding Bird Atlas (Cadman et al. 2007). Surveys began within half an hour of sunrise and were completed before 10am.

A total of 20 species were observed within the Subject Lands during breeding bird surveys. No Protected Species were detected and no Barn Swallow nests were observed. All species observed had a breeding species in Ontario status of secure (S5), apparently secure (S4), or not applicable (SNA). A complete list of the bird species observed and their breeding codes is provided in Appendix C

3.3.4 Mammal Habitat

The Subject Lands contain no suitable maternity roosting habitat for bats. There are no trees and only one recently abandoned building within the Subject Lands. The building was examined and determined that it does not provide suitable habitat as it is a newly constructed building with no gaps in its siding or roof.

The Adjacent Lands contain a deciduous woodland that is assumed to provide suitable maternity roosting habitat for bats. Targeted surveys were not undertaken as the woodland is outside the Subject Lands.

A mammal den was observed within the woodland located on the Adjacent Lands. The den was monitored using a trail-cam that collected footage from May 19 to May 21 and June 7 to June 15, 2022. The resulting footage was reviewed and found no den-using mammals or SAR; white-tailed deer, rabbit and raccoon were the only species observed on the trail-cam footage.

3.3.5 Incidental Wildlife Observations

Eastern chipmunk, white-tailed deer, raccoon, and gray squirrel were observed during the summer breeding birds survey. No other incidental wildlife observations were recorded during field investigations.

3.4 Significant Wildlife Habitat

MNRF Significant Wildlife Habitat (SWH) Criteria Schedules for Ecoregion 7E (January 2015) use ELC ecosite codes and habitat criteria (eg. Size of ELC polygon, location of ELC polygon) to identify candidate significant wildlife habitat. Candidate SWH is further evaluated using site-specific life science data collected during field investigations and based on the defining criteria (e.g. species presence, abundance, and diversity) to confirm the presence or absence of SWH. A complete assessment of candidate SWH is provided in Appendix D.

A summary of candidate and confirmed SWH on or adjacent to the Subject Lands is provided below.

No candidate or confirmed SWH is present within the Subject Lands.

Candidate SWH is present on the adjacent lands, associated with the swamp thicket (SWT) and mineral cultural thicket (CUT1) to the north and the mineral cultural woodland (CUW1) to the south. Candidate SWH for the Adjacent Lands can be found in Appendix D.

3.5 Habitat for Threatened and Endangered Species

Habitat potential for Protected Species within the Subject and Adjacent Lands was evaluated using a combination of desktop review, satellite photo interpretation and results of field investigations. A summary of the evaluation is provided in Appendix E.

The Protected Species listed in Table 1 are considered absent from the Subject Lands due to lack of suitable habitat or an absence of species' observations during targeted surveys (e.g. breeding bird surveys and botanical inventory).

Protected Species or their habitats present within the Adjacent Lands are:

Little Brown Myotis, Northern Myotis, and Tri-coloured Bat [END]:

 Potential tree roosting habitat for Endangered bats is assumed to be present in the mineral cultural woodland community CUW1 on the Adjacent Lands

Butternut [END]:

• Three Butternut were found on the Adjacent Lands within the mineral cultural woodland community (CUW1). All three Butternut are located >100 m from the Subject Lands.

4.0 Assessment of Significant Natural Heritage Features

4.1 Significant Wetlands

A locally-significant wetland, the Moore Water Garden (KC 5) swamp, is present on the Adjacent Lands across Sunset Drive. The portion of wetland within the Study Area is approximately 15-25 m in width. The majority of the wetland community is located north and west of the Study Area. There is no direct surface water connection between this wetland and the Subject Lands.

4.2 Significant Woodlands

The Provincial Policy Statement (2020) defines a Significant Woodland as "an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history". To assist in the identification of significant woodlands, planning authorities are encouraged to develop a set of evaluation criteria based on the factors and characteristics provided in the Natural Heritage Reference Manual (MNR, 2010). As the County of Elgin and Municipality of Central Elgin official plan policies include criteria for evaluating woodland significance, these are applied below.

4.2.1 Municipality of Central Elgin Official Plan (2013)

Under the Municipality of Central Elgin Official Plan Policy 3.1.1.2 all woodlands greater than 2ha in size are considered significant. Woodlands are defined generally as treed areas, woodlots or forested areas.

The woodland on the adjacent lands is part of a contiguous woodland feature greater than 2 ha in size. In accordance with the Municipality of Central Elgin Official Plan, the woodland within the Study Area, outside the Subject Lands, meets the criteria for designation as a Significant Woodland.

4.2.2 County of Elgin Official Plan (2015)

Under the County of Elgin Official Plan Section D1.2.2.1 Significant Woodlands are defined as:

- Woodlands greater than 10ha
- Woodlands between 2 and 10ha if located within 30m of another significant natural heritage feature boundary

Based on a review of satellite imagery, the contiguous woodland feature on adjacent lands and extending beyond the Study Area is approximately 12 ha. Therefore, this feature meets the County of Elgin Official Plan criteria for designation as a Significant Woodland.

4.3 Significant Valleylands

The Provincial Policy Statement (2020) defines a Significant Valleyland as a natural area occurring in a valley or other landform depression with flowing or ephemeral water that is ecologically important in terms of features, functions, representation, or amount. This feature should contribute to the quality and diversity of the natural heritage system. The identification and evaluation of Significant Valleylands is the responsibility of planning authorities and is based on recommended criteria from MNR, as provided in the Natural Heritage Reference Manual (MNR, 2010).

No Significant Valleylands are mapped within the Study Area, and no landform depression with flowing or ephemeral water is present on or adjacent to the Subject Lands.

4.4 Significant Wildlife Habitat

As noted in Section 3.4, no candidate or confirmed SWH is present on the Subject Lands. Candidate SWH is associated with the wetland and woodland communities on Adjacent Lands, but was not confirmed through targeted field investigations.

4.5 Significant Areas of Natural and Scientific Interest

The provincially significant Port Stanley Till Earth Science ANSI is located northwest of the Subject Lands across Sunset Drive.

4.6 Fish habitat

Watercourses or waterbodies providing direct fish habitat are absent from the Study Area. No indirect habitat (e.g. contributing water to downstream fish habitat) is present within the Subject Lands.

4.7 Habitat of Endangered and Threatened Species

No Protected Species or their habitats are present on the Subject Lands. As noted in Section 3.5, tree roosting habitat for Little Brown Myotis, Northern Myotis, and Tri-coloured Bat [END] is assumed to be present in the mineral cultural woodland community CUW1 on the Adjacent Lands. Three Butternut trees are present on the adjacent lands within the CUW1 community, located more than 100 m from the Subject Lands. Protected habitat for Butternut includes a 25 m minimum radius from the base of the stem of the tree to maintain suitable habitat for the existing tree, as well as retain habitat for regeneration (Poisson & Ursic, 2013).

4.8 Significant Natural Heritage Features Summary

A summary of significant features and functions identified on the Subject Lands and Adjacent Lands, in accordance with provincial and municipal policy, is provided in Table 3, below.

Policy Category	Policy-protected Natural Heritage Feature	Description of Feature on the Subject Lands and Adjacent Lands (120 m)		
	Significant Wetlands	Moore Water Garden (KC 5) is a locally significant wetland located on the Adjacent Lands, to the northwest of the Subject Lands.		
	Significant Woodlands	Significant Woodland is present within the Study Area, outside the Subject Lands, to the south and west.		
Provincial Policy Statement, Elgin County Official Plan and Municipality of Central Elgin Official Plan	Significant Wildlife Habitat (SWH)	 There is no Candidate SWH present on the Subject Lands. Candidate SWH is present on the Adjacent Lands for: Land Bird Migratory Stopover Areas in cultural woodland community CUW1 Amphibian Breeding Habitat (Woodland) in swamp community SWT Marsh Breeding Bird Habitat (Green Heron) in SWT and CUT across Sunset Drive Terrestrial Crayfish in swamp community SWT Special Concern and Rare Wildlife Species: Common Hoptree, Crooked-stem Aster, Eastern Ribbonsnake, Monarch in SWT and CUT across Sunset Drive 		
	Areas of Natural and Scientific Interest	The Port Stanley Till earth science ANSI is present on Adjacent Lands, north of the property limit and across Sunset Drive.		
	Habitat of Threatened	Three Butternut trees are present on the adjacent lands within the CUW1 community, located more than 100 m fror the Subject Lands.		
	Species	Potential habitat for three Endangered bat species is assumed to be present within woodlands on the Adjacent Lands.		
KCCA Regulations	Hazard Lands	The regulation limit provided by KCCA is associated with the Hazard Area (slope) to the south of the Subject Lands.		

	Table 3.	Natural	Heritage	Features	or F	unctions	of	the	Subje	ct L	ands
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5.0 Project Description

The proposal for this project includes the construction of three commercial buildings and one restaurant with a drive-thru on a 0.75 ha lot (Subject Lands). The four buildings have an estimated total footprint of 1370 m². The commercial development will also include approximately 76 parking spots (subject to exact floor area and building use). One existing building, located on the western edge of the Subject Lands, with a designated land use of Commercial – Industrial (Schedule G, Municipality of Central Elgin), will be removed to provide necessary space for the development.

A concept drawing of the project has been included within this report [Figure 6].

6.0 Potential Impacts and Mitigation Recommendations

In accordance with relevant municipal policy, potential direct and indirect impacts to these features must be addressed through avoidance, mitigation or compensation measures. An overlay of the development and relevant natural heritage features has been included in Figure 7.

6.1 Significant Wetland

Moore Water Garden, a locally-significant wetland, is situated on the Adjacent Lands across Sunset Drive (a two-lane road with an approximate width of 15 m). No direct impacts to the locallysignificant wetland are anticipated as a result of the proposed development. Based on physical separation and topography, no evidence of a surface water connection from the Subject Lands to this wetland was observed. Consequently, no indirect impacts to the wetland are anticipated. Potential impacts to SWH within the wetland are discussed in Section 6.3, below.

6.2 Significant Woodland & Other Vegetation

The proposed development will result in the removal of 0.75 ha of cultural meadow vegetation. This community has been subject to past disturbance, and is not considered sensitive or significant. No rare or protected plant species were observed within the Subject Lands.

To the south of the Subject Lands is a cultural woodland (CUW1) that is part of a Significant Woodland as defined by the Municipality of Central Elgin. In order to protect this significant natural heritage feature and its functions, a setback of 5 m from the dripline of the Significant Woodlot to the development property is recommended. Based on the undulating feature edge next to the development, in some places the proposed buffer is greater than 10 m, therefore the development proposal will achieve an average buffer width of 5 m or more. The setback between the edge of development and the woodland should be naturalized to the extent possible through planting of native species.

In order to accommodate the proposed development, the removal of one tree at the east corner and slight encroachment on the 5 m woodland setback at westernmost corner of the development may be required. The loss of approximately 300 m² from the feature will be offset by a gain of 700 m² of naturalized area where the buffer is greater than 5 m in width. A tree inventory and preservation plan should be prepared by a qualified arborist to assess the potential to retain and protect individual trees within these areas of overlap, and to identify potential fall hazards if present.

Except as noted above, tree removal should not occur within the woodland setback. If the removal of overhanging branches is required, branches shall be removed by a qualified arborist to ensure limited impacts to understory and remaining trees. If work is required within the buffer, the consultant shall be contacted for direction. Any damage to selected remaining trees as a result of construction related operations shall be reported to the consultant immediately to ensure appropriate treatment measures can be implemented.

The following mitigation and compensation measures are recommended to avoid negative impacts to this natural heritage feature:

Recommendation 1: A tree inventory and preservation plan should be prepared by a qualified arborist to assess the potential to retain and protect individual trees within the 5 m woodland setback, and to identify potential fall hazards if present.

Recommendation 2: In order to protect the woodland feature and its functions, grading and structures should be located a minimum of 5 m beyond the dripline of the retained woodland edge where possible [Figure 7].

Recommendation 3: Flag the limits of the Significant Woodland and vegetation communities retained prior to construction to avoid inadvertent encroachment.

Recommendation 4: Incorporate naturalized plantings with native tree and shrub species in setback area between the proposed development and the Significant Woodland to provide a natural buffer to the woodland.

Recommendation 5: Invasive plant species that are identified along the woodland edge or within the proposed naturalization area should be removed and best management practices for limiting spread of floral invasive species should be followed during development.

Recommendation 6: Areas of exposed soil following construction should be stabilized with vegetation or other suitable ground cover, avoiding plant species with the potential to invade the Significant Woodland. For information on invasive, non-native plant species in southwestern Ontario, refer to: http://thamesriver.on.ca/wp-content/uploads/InvasiveSpecies/Invasive-plants.pdf.

6.3 Significant Wildlife Habitat and Wildlife

No candidate or confirmed SWH is present on the Subject Lands, therefore there will be no direct impacts to SWH. The following candidate (unconfirmed) SWH is present or assumed to be present on the Adjacent Lands based on the size and characteristics of habitat (significant woodland and wetland) available:

- Bat Maternity Colonies in cultural woodland community CUW1
- Land Bird Migratory Stopover Areas in cultural woodland community CUW1
- Amphibian Breeding Habitat (Woodland) in swamp thicket community SWT
- Marsh Breeding Bird Habitat (Green Heron) in swamp thicket community SWT
- Terrestrial Crayfish in swamp thicket community SWT
- Special Concern and Rare Wildlife Species: Bald Eagle, Broad Beech Fern, Common Hoptree, Crooked-stem Aster, Eastern Ribbonsnake, Eastern Wood-Pewee, Horned Grebe, Monarch, Snapping Turtle, and Wood Thrush.

The width of the Significant Woodland behind the Subject Lands is approximately 30 m, too narrow to contain interior habitat and already subject to edge effects from adjacent roads and agricultural lands. Therefore, despite the significance of the feature within the broader landscape, the portion of the woodland directly adjacent the Subject Lands is considered less sensitive to disturbance. Indirect impacts to SWH in the Significant Woodland will be reduced as the development within the Subject Lands has been set back a minimum of 5 m from the dripline. The naturalization of the 5 m setback with trees and shrubs will increase overall woodland area, provide visual screening and act as a physical buffer between the woodland and proposed development.

The Locally-Significant Wetland located within the Study Area (Moore Water Garden (KC 5)) is a swamp situated on the Adjacent Lands, across Sunset Drive (a two-lane road with an approximate width of 15 m). The portion of the wetland that occurs immediately adjacent to the Subject Lands has a width of less than 25 m and is not expected to support the concentrations of wildlife typically required to confirm SWH. Therefore, it is unlikely that candidate SWH which may be found within the greater Moore Water Garden (KC 5) wetland would be impacted by the proposed development on the Subject Lands.

Wildlife may experience temporary disturbance during construction when crossing roads or moving through active construction areas. Timing restrictions on vegetation removal are recommended to avoid disturbance to wildlife that may be using natural areas on the site, including breeding birds and bats. Nesting migratory birds are protected under the Migratory Birds Convention Act (MBCA), 1994. No work is permitted to proceed that would result in the destruction of active nests (nests with eggs or young birds), or the wounding or killing of birds, of species protected under the Migratory Birds Convention Act, 1994 and/or Regulations under that Act. Some MBCA-protected species,

such as Killdeer, may make use of un-maintained areas as they frequently make nests on the ground in construction sites and other disturbed areas.

Mitigation measures to avoid impacts to wildlife and wildlife habitat are recommended as follows:

Recommendation 7: Avoid vegetation clearing and site disturbance during the migratory bird breeding season (April to August 31) to ensure that no active nests will be removed or disturbed, in accordance with the Migratory Birds Convention Act and/or Regulations under that Act. If works are proposed within the breeding season, prior to any vegetation removal or ground disturbance, the area should be checked for nesting birds by a qualified professional. If there are any nesting birds, works within the nesting area should not proceed until after August 31 or the nest is confirmed inactive.

Recommendation 8: If an animal enters the work site, work at that location will stop and the animal should be permitted to leave un-harassed. If there are repeat observations of wildlife in the work area, barrier fencing (e.g. silt fence) may be used to direct wildlife away from active construction and toward natural areas.

6.4 Areas of Natural and Scientific Interest (ANSI)

The provincially significant Port Stanley Till Earth Science Area of Natural and Scientific Interest (ANSI) is located to the northwest of the Subject Lands, across Sunset Drive (LIO, 2014). The ANSI designation for this area falls under the category of an Earth Science ANSI that is related to a geological formation. The Natural Heritage Reference Manual for the PPS (MNR, 2010) notes that appropriate land uses adjacent to an Earth Science ANSI are those that conserve topography and other geologically-defined features for which the area was identified. The proposed development will conserve the topography of the Subject Lands and will have no direct or indirect impacts to the adjacent Earth Sciences ANSI.

6.5 Habitat of Endangered or Threatened Species

Based on the review of background data sources (Table 1) and results of field investigations, no Protected Species or their habitats are present on the Subject Lands. Potential habitat for Little Brown Myotis, Northern Myotis, and Tri-coloured Bat [END] is present in the adjacent woodland. As trees will be retained on adjacent lands, no impacts to these species or their habitats are anticipated as a result of the proposed development. Although three Butternut [END] trees were observed within the Study Area, the area of protected habitat for these species does not include the Subject Lands, therefore no negative impacts to the species are expected.

Although Protected Species are not expected to be encountered, in addition to the general mitigation measures for wildlife and wildlife habitat recommended in Section 6.3, above, the following additional mitigation measures are provided:

Recommendation 9: No Bank Swallow [THR] were observed within or adjacent to the Subject Lands, however creation of suitable habitat (e.g. soil stockpiles) during construction should be avoided. Best management practices for deterring nesting during construction activities should be implemented (OMNRF, 2017). These measures should include stockpile slope management (i.e., grading stockpiles, eliminating vertical extraction faces, reducing slopes to 70 degrees or less) until at least July 15.

Recommendation 10: Any observation of a Protected Species should be reported to MECP. Protected Species should not be handled, harassed or moved unless they are in immediate danger.

6.6 Indirect Impacts

Natural heritage features may also experience indirect effects during construction, such as sedimentation and erosion or soil/root zone compaction, or post-construction, such as inadvertent

encroachment. Indirect impacts on natural features will be mitigated through the implementation of standard environmental protection measures, discussed below.

6.6.1 Sediment and Erosion Control

Due to the proximity of construction activities to Significant Woodland and the top of slope, potential indirect impacts due to sediment transport and soil erosion are possible. For all works and especially those within 30 m of adjacent natural heritage features, sediment and erosion control measures will be required to ensure that indirect impacts to the natural heritage features identified in this report are avoided or mitigated.

Recommendation 11: Prior to works on site, robust sediment and erosion control fencing should be installed adjacent to all retained natural features. The fence will act as a barrier to keep construction equipment and soil away from vegetation to remain, and prevent erosion and sedimentation of the adjacent features. Sediment and erosion control fencing will be installed according to the to the Guidelines for Erosion and Sediment Control for Urban Construction Sites (OMNR, 1987) and the applicable standards established in the Ontario Provincial Standard Specification/Ontario Provincial Standard Drawings (OPSS/OPSD) documents.

Recommendation 12: During construction, the lands between the sediment and erosion control fencing should be maintained. Fencing should remain in place until construction is complete and any natural areas to remain are seeded and naturalized.

Recommendation 13: Soil stockpiles should be established on the tableland in locations that are away from natural surface drainage pathways. Soil stockpiles should be protected with robust sediment and erosion control. Access to the stockpile should be confined to the up-gradient side. If this is not possible, these stockpiles should be protected with robust sediment and erosion control. The stockpile locations should be reviewed at detailed design.

Recommendation 14: Sediment and erosion control fencing should be inspected prior to construction to ensure it was installed correctly and during construction to ensure that the fencing is being maintained and functioning properly. Any issues that are identified are resolved as quickly as possible, ideally the same day.

Recommendation 15: Sediment and erosion control fencing should not be removed until adequate re-vegetation and site stabilization has occurred. Additional re-vegetation plantings and/or more time for vegetation to establish may be required; however, two growing seasons are typically sufficient to stabilize most sites.

Recommendation 16: All disturbed areas should be re-seeded as soon as possible to maximize erosion protection and to minimize volunteer populations of invasive species which may spread to the adjacent feature.

Recommendation 17: Roof runoff to bare ground can generate considerable sediment movement beyond the construction limits. Until the grounds have been vegetated and stable for housing and development adjacent to vegetation, roof leaders should be directed to the road or nearby stabilized vegetated areas.

6.6.2 Noise and Lighting

The portion of the Subject Lands proposed for development is adjacent to Sunset Drive, a major traffic route into Port Stanley. There may be some increased noise on the Subject Lands due to proposed parking, deliveries and general use of the proposed commercial buildings and restaurant. Uncontrolled lighting could also impact the adjacent woodland. To avoid indirect impacts resulting from noise or lighting, the following mitigation recommendations are provided:

Recommendation 18: Exterior lighting should be fully shielded and pointed downward to minimize skyglow, glare and light trespass into the adjacent natural features.

Recommendation 19: A lighting plan should be developed following best practices suited to natural areas which avoid over-lighting, restrict light trespass and include Dark Sky Compliant fixtures (IDA Dark Sky Approved).

Recommendation 20: Noise disturbance should be limited to allowable hours per the Municipality of Central Elgin By-Law No. 212 (Table 3-1). Where possible, construction noise from heavy machinery should also be avoided during the migratory bird breeding period, defined as April 1st to August 31st, to avoid disturbance of birds nesting within the adjacent woodland.

6.6.3 Construction Site Management

Recommendation 21: Regular cleanup of the Subject Lands must be completed during construction and post-construction to ensure the adjacent natural heritage features are not degraded.

Recommendation 22: Equipment should be cleaned prior to arrival on site including tires, undercarriage, and any part of the equipment that may transport invasive seeds to the site.

Recommendation 23: Dust abatement measures (e.g. watering) are recommended if site grading will occur during extended dry weather periods.

6.6.4 Snow Storage and Salt Management

The use of salt for de-icing in winter could result in salt accumulation within soils and inadvertent runoff to naturalized drainage swales or natural features. Snow storage piles can also create a more concentrated source of contamination during the spring melt. Mitigation measure to avoid negative impacts to natural heritage features as a result of snow storage and salt use are provided below:

Recommendation 24: Develop a salt management plan as part of detailed design studies that recommends best practices for limiting the use of salts or other additives for ice and snow control on the roadways.

Recommendation 25: Snow storage should be located away from natural heritage features and drainage swales.

7.0 Conclusion

MTE has evaluated the proposal for the 4980 Sunset Drive development that includes the construction of four commercial buildings and 76 parking lots, as well as the removal of one existing building, within the Subject Lands. MTE has determined that the potential impacts to natural heritage features on Adjacent Lands will be avoided and/or mitigated with the recommendations written within this Environmental Impact Study. Provided the above recommendations for mitigation are followed during all stages of proposed construction, no significant impacts to the adjacent natural heritage features are expected. MTE seeks comments from the Municipality of Central Elgin, Elgin County and KCCA concerning the contents of this report. Formal comments may be submitted on behalf of the client to MTE. Should any clarification, questions, or additional materials be needed as part of the review of this report, do not hesitate to contact us.

All of which is respectfully submitted,

MTE Consultants Inc.

Trallyon

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Melissa Cameron, M.Sc., OALA Senior Biologist 519-204-6510 ext. 2263 mcameron@mte85.com

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8.0 References

Cadman et al. 2007. Atlas of Breeding Birds of Ontario

Elgin County. The Official Plan of the County of Elgin. 2015. St. Thomas, ON.

- Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig, and S. McMurray. 1998. Ecological Land Classification for Southern Ontario: First Approximation and its Application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. Field Guide FG.
- Ministry of Natural Resources and Forestry (MNRF). 2017. Survey Protocol for Species at Risk within Treed Habitats: Little Brown Myotis, Northern Myotis & Tri-coloured Bat. April 2017. 12 pp.
- Ministry of Natural Resources and Forestry (MNRF). 2020. Natural Heritage Information Centre (NHIC) Online Database. Retrieved from https://www.ontario.ca/page/natural-heritageinformation-centre
- Ministry of Natural Resources and Forestry (MNRF). 2021. Land Information Ontario Mapping. Retrieved from https://geohub.lio.gov.on.ca/

Municipality of Central Elgin. 2013. Municipality of Central Elgin Official Plan.

- Oldham, Michael J. 2017. List of Vascular Plants of Ontario's Carolinian Zone (Ecoregion 7E). Carolinian Canada and Ontario Ministry of Natural Resources and Forestry. Peterborough, ON. 132 pp.
- Ontario Ministry of Natural Resources (MNR), 2010. Natural Heritage Reference Manual for Natural Heritage Policies the Provincial Policy Statement, 2005. April 2010. Toronto, Ontario.
- Ontario Ministry of Natural Resources and Forestry. 2015. Significant Wildlife Habitat Criterial Schedule B Ecoregion 7E. 40pp. January 2015.

Figures









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LEGEND

 SUBJECT LANDS
 STUDY AREA (120m Buffer from Subject Site)

REFERENCES

BING IMAGERY AS OF AUGUST 9 - 2022 (IMAGE DATE UNKNOWN); MONTEITH BROWN PLANNING CONSULTANTS, CONCEPTUAL DEVELOPMENT, NOVEMBER 29 - 2021; AND LAND INFORMATION ONTARIO, ROAD AND WATER NETWORK (Key Plan).

NOTES

Aug 11/22

THIS FIGURE IS SCHEMATIC ONLY AND TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT. BING IMAGERY USED FOR ILLUSTRATION PURPOSES ONLY AND NOT TO BE USED FOR MEASUREMENTS.

ALL LOCATIONS ARE APPROXIMATE.

SCALE IN METRES 0 30 60m 1:1,500 1:1,500 FIGURE AS SHOWN Checked Project No. 4880 SUNSET DRIVE PORT STANLEY, ONTARIO FIGURE 1

100-R01005.DWG STUDY_4980 SUNSET DRIVE\48808 IMPACT 100-R01 ENVIRONMENTAL PROD\48808-P:\P\48808\100\2 CAD: 0





REFERENCES

MONTEITH BROWN PLANNING CONSULTANTS, CONCEPTUAL DEVELOPMENT, NOVEMBER 29 - 2021; AND THE MUNICIPALITY OF CENTRAL ELGIN, SCHEDULE A2, ENVIRONMENTAL FEATURES, FEBRUARY 21 - 2012.

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ALL LOCATIONS ARE APPROXIMATE.





ENVIRONMENTAL IMPACT STUDY 4980 SUNSET DRIVE PORT STANLEY, ONTARIO

ENVIRONMENTAL FEATURES (Central Elgin Official Plan)

FIGURE 2

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Wetlands (PSW)	decisions made or actions taken or not upon the information and data furnish	t taken by any person in reliance ed hereunder.		
	Imagery: 2015 SWOOP	Date: August 10, 2022	Conservation Authority	







LEGEND

	SUBJECT LANDS
	STUDY AREA (120m Buffer from Subject Site)
-1-	VEGETATION COMMUNITY
711111.	KCCA REGULATION LIMIT
	LOCALLY SIGNIFICANT WETLAND (LIO)
No. 19 19	WOODLAND

REFERENCES

BING IMAGERY AS OF AUGUST 9 - 2022 (IMAGE DATE UNKNOWN); AND MONTEITH BROWN PLANNING CONSULTANTS, CONCEPTUAL DEVELOPMENT, NOVEMBER 29 - 2021; KETTLE CREEK CONSERVATION AUTHORITY (KCCA), REGULATION LIMIT; AND WETLAND, LAND INFORMATION ONTARIO.

NOTES

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ALL LOCATIONS ARE APPROXIMATE.

SCALE IN METRES 30 60m 1:1,500 Engineers, Scientists, Surveyor OJEC ENVIRONMENTAL IMPACT STUDY 4980 SUNSET DRIVE PORT STANLEY, ONTARIO TLE **VEGETATION COMMUNITIES**

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2.4

- Mineral Cultural Woodland (1.89ha)
- Mineral Cultural Meadow (2.04ha)

Cultural Thicket (0.88ha - includes 3a)

Drawn DCH	Scale AS SHOWN	
Checked	Project No. 48808-100	FIGURE 5
Date Aug 13/22	Rev No. 0	







WOODLAND

REFERENCES

BING IMAGERY AS OF AUGUST 9 - 2022 (IMAGE DATE UNKNOWN); AND MONTEITH BROWN PLANNING CONSULTANTS, CONCEPTUAL DEVELOPMENT, NOVEMBER 29 - 2021.

NOTES

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BING IMAGERY USED FOR ILLUSTRATION PURPOSES ONLY AND NOT TO BE USED FOR MEASUREMENTS.

ALL LOCATIONS ARE APPROXIMATE.



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ENVIRONMENTAL IMPACT STUDY 4980 SUNSET DRIVE PORT STANLEY, ONTARIO

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DEVEOPMENT OVERLAY

Drawn	Scale
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	48808-100
Date	Rev No.
Aug 12/22	0



30m



List of Protected Species and Species of Conservational Concern (SOCC)



Common Name	Scientific Name	Srank	SARO Status	Database
Acadian Flycatcher	Empidonax virescens	S1B	END	OBBA, NHIC (Adjacent)
American Badger (SW Ontario population)	Taxidea taxus jacksoni	S1	END	NHIC (Adjacent)
American Chestnut	Castanea dentata	S1S2	END	NHIC (Adjacent)
American Ginseng	Panax quinquefolius	S2	END	NHIC (Adjacent)
Bald Eagle	Haliaeetus leucocephalus	S4	SC	eBird
Bank Swallow	Riparia riparia	S4B	THR	OBBA, eBird, iNaturalist
Barn Swallow	Hirundo rustica	S4B	THR	NHIC (Adjacent), OBBA, iNaturalist
Bobolink	Dolichonyx oryzivorus	S4B	THR	NHIC, OBBA, iNaturalist
Broad Beech Fern	Phegopteris hexagonoptera	S 3	SC	NHIC
Butternut	Juglans cinerea	S2?	END	NHIC (Adjacent)
Chimney Swift	Chaetura pelagica	S3B	THR	OBBA, iNaturalist
Common Hoptree	Ptelea trifoliata	S 3	SC	iNaturalist
Crooked-stem Aster	Symphyotrichum prenanthoides	S2?	SC	iNaturalist
Eastern False Rue-anemone	Enemion biternatum	S2	THR	NHIC
Eastern Meadowlark	Sturnella magna	S4B,S3N	THR	NHIC, OBBA
Eastern Prickly-pear Cactus	Opuntia cespitosa	S1	END	NHIC (Adjacent)
Eastern Ribbonsnake	Thamnophis sauritus	S4	SC	NHIC, ORAA
Eastern Wood-Pewee	Contopus virens	S4B	SC	OBBA
Horned Grebe	Podiceps auritus	S1B,S3N,S4M	SC	eBird
Louisiana Waterthrush	Parkesia motacilla	S2B	THR	NHIC (Adjacent), OBBA
Massasauga (Carolinian population)	Sistrurus catenatus pop. 2	S1	END	NHIC (Adjacent)
Monarch	Danaus plexippus	S2N,S4B	SC	iNaturalist
Northern Bobwhite	Colinus virginianus	S1?	END	NHIC, OBBA
Red-headed Woodpecker	Melanerpes erythrocephalus	S3	END	OBBA, iNaturalist
Snapping Turtle	Chelydra serpentina	S4	SC	NHIC, ORAA
Spiny Softshell	Apalone spinifera	S2	END	NHIC (Adjacent)
Wood Thrush	Hylocichla mustelina	S4B	SC	NHIC, OBBA
Yellow-breasted Chat	Icteria virens	S1B	END	NHIC (Adjacent)

1 – NHIC: Natural Heritage Information Centre
2 – OBBA: Ontario Breeding Bird Atlas (2001-2005; highest breeding evidence per square)
3 – ORAA: Ontario Reptile and Amphibian Atlas



Botanical Inventory List



Floral Inventory													
Scientific Name	Common Name	CW	GRank	COSEWIC	Nrank	SARO	SRank	CZ	CZRESTR	EL	7E4	Туре	Invasive
Abutilon theophrasti	Velvetleaf	3.0	GNR		NNA		SE5	IC		IC	IR	FO	
Acer negundo	Manitoba Maple	0.0	G5		N5		S5	С		С	IC	TR	Y
Acer platanoides	Norway Maple	5.0	GNR		NNA		SE5	IU		IR	IC	TR	Y
Acer rubrum	Red Maple	0.0	G5		N5		S5	C		C	C	TR	
Acer saccharum	Sugar Maple	3.0	G5 CND		N5		S5	C		С	C	TR	
Agrimonia eupatoria	European Agrimony	0.0					SEI					FO	v
Allium tricoccum		3.0	G5		NINA N5		3E3 SA	IC			IC.	FO	T
Alopecurus pratensis	Meadow Foxtail	-3.0	GNR		NNA		SE5	IU		ΙU	IU	GR	
Ambrosia artemisiifolia	Common Ragweed	3.0	G5		N5		S5	C		C	C	FO	
Ambrosia psilostachya	Perennial Ragweed	0.0	G5		N5		SU	IR		IR	-	FO	
Ambrosia trifida	Great Ragweed	0.0	G5		N5		S5	С		С	U	FO	
Anemone quinquefolia	Wood Anemone	0.0	G5		N5		S5	С		С	U	FO	
Arctium minus	Common Burdock	3.0	GNR		NNA		SE5	IC		IC	IC	FO	
Arisaema triphyllum	Jack-in-the-pulpit	-3.0	G5		N5		S5	С		С	С	FO	
Asclepias syriaca	Common Milkweed	5.0	G5		N5		S5	С		С	С	FO	
Athyrium filix-femina	Common Lady Fern	0.0	G5		N5		S5					FE	
Berberis thunbergii	Japanese Barberry	3.0	GNR		NNA		SE5	IX		IU	IC	SH	Y
Betula papyrifera	Paper Birch	3.0	G5 CND		N5		S5	C		C	C	TR	
Carua cordiformic	Hally Bittercress	3.0	GINK		NINA NIS		SE4				іх С	FU TP	
Carva ovata	Shagbark Hickory	3.0	G5		N5		S5	r c			с П		
Centaurea stoebe	Spotted Knapweed	5.0	GNR		NNA		SE5	IC.		IX	IR	FO	
Chenopodium album	White Goosefoot	3.0	G5		NNA		SE5	IC		IC	IC	FO	
Cichorium intybus	Chicory	3.0	GNR		NNA		SE5	IC		IC	IC	FO	
Circaea alpina	Small Enchanter's Nightshade	-3.0	G5		N5		S5	С		х	R	FO	
Circaea canadensis	Broad-leaved Enchanter's Nightshade	3.0	G5		N5		S5	С		С	С	FO	
Cirsium arvense	Canada Thistle	3.0	G5		NNA		SE5	IC		IC	IC	FO	Y
Cornus alternifolia	Alternate-leaved Dogwood	3.0	G5		N5		S5	С		х	С	SH	
Cornus racemosa	Gray Dogwood	0.0	G5		N5		S5	С		х	С	SH	
Cornus sericea	Red-osier Dogwood	-3.0	G5		N5		S5	С		C	С	SH	
Crataegus crus-galli	Cockspur Hawthorn	0.0	G5		N5		S4	U	CZ	X	R	SH	
Crataegus punctata	Dotted Hawthorn	5.0	G5 CND		N5		S5	C		С	C	SH	
Cucumis sativas	Wild Carrot	5.0					SEI					VI EO	
Drucus curotu Drvonteris carthusiana	Spinulose Wood Fern	-3.0	G5		N5		S5	C			C C	FF	
Echinocystis lobata	Wild Mock-cucumber	-3.0	G5		N5		S5 S5	c		x	C	VI	
Elaeagnus umbellata	Autumn Olive	3.0	GNR		NNA		SE3	IU		IR	IU	SH	Y
Elymus repens	Creeping Wildrye	3.0	GNR		NNA		SE5	IC		IC	IC	GR	
Equisetum arvense	Field Horsetail	0.0	G5		N5		S5	С		С	С	FE	
Equisetum sylvaticum	Woodland Horsetail	-3.0	G5		N5		S5	U		R	R	FE	
Erigeron annuus	Annual Fleabane	3.0	G5		N5		S5	С		С	С	FO	
Erigeron canadensis	Canada Horseweed	3.0	G5		N5		S5	С		С	U	FO	
Erythronium americanum	Yellow Trout-lily	5.0	G5		N5		S5	С		С	С	FO	
Fagus grandifolia	American Beech	3.0	G5		N5		S4	С		С	С	TR	
Fragaria virginiana	Wild Strawberry	3.0	G5		N5		S5					FO	
Fraxinus americana	White Ash	3.0	G5 CF		N5		S4	C		C	C		
Galium aparine	Green Ash	-3.0	G5				54	C				1R EO	
Geranium maculatum	Spotted Geranium	3.0	G5		N5		S5			<u> </u>	r r	FO	
Geum aleppicum	Yellow Avens	0.0	G5		N5		S5	C.		x	x	FO	
Geum canadense	White Avens	0.0	G5		N5		S5	c		x	C	FO	
Helianthus strumosus	Pale-leaved Sunflower	5.0	G5		N5		S5	R	cz	R	R	FO	
Hesperis matronalis	Dame's Rocket	3.0	G4G5		NNA		SE5	IC		IC	IC	FO	Y
Hypericum perforatum	Common St. John's-wort	5.0	GNR		NNA		SE5	IC		IC	IC	FO	Y
Impatiens capensis	Spotted Jewelweed	-3.0	G5		N5		S5	С		С	С	FO	
Juglans cinerea	Butternut	3.0	G4	END	N3N4	END	S2?	U		U	U	TR	
Juglans nigra	Black Walnut	3.0	G5		N4		S4?	С		С	С	TR	
Juniperus virginiana	Eastern Red Cedar	3.0	G5		N5		S5	С		U	U	TR	
Larix decidua	European Larch	5.0	G5 GNF		NNA		SE2	IX		IX	IX	TR	
Leonurus cardiaca	Common Motherwort	5.0	GNR		NNA		SE5				IC	FO	V
Ligustrum vuigare	European Privet	3.0			NNA		SED	IX		IK	IU	SH	Y
Lonicera tatarica		3.0	GNR		ΝΝΔ		SE2					VVV 5н	v
Lotus corniculatus	Garden Bird's-foot Trefoil	3.0	GNR		NNA		SE5			іх	IC	FO	Y
Maianthemum canadense	Wild Lily-of-the-valley	3.0	G5		N5		S5	C		C C	C	FO	•
Maianthemum racemosum	Large False Solomon's Seal	3.0	G5		N5		S5	C		c	C	FO	
Malus pumila	Common Apple	5.0	G5		NNA		SE4	IC		IX	IC	SH	
Matteuccia struthiopteris	Ostrich Fern	0.0	G5		N5		S5	С		С	С	FE	
Melilotus albus	White Sweet-clover	3.0	G5		NNA		SE5	IC		IC	IC	FO	Y

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Monarda fistulosa	Wild Bergamot	3.0	G5		N5		S5					FO	
Morus alba	White Mulberry	0.0	GNR		NNA		SE5	IC		IU	IC	TR	Y
Oenothera biennis	Common Evening Primrose	3.0	G5		N5		S5	С		Х	U	FO	
Onoclea sensibilis	Sensitive Fern	-3.0	G5		N5		S5	С		С	С	FE	
Ostrya virginiana	Eastern Hop-hornbeam	3.0	G5		N5		S5	С		С	С	TR	
Oxalis montana	Common Wood-sorrel	3.0	G5		N5		S5	R				FO	
Parthenocissus quinquefolia	Virginia Creeper	3.0	G5		N4N5		S4?	U	CZ	Х	R	VW	
Pastinaca sativa	Wild Parsnip	5.0	GNR		NNA		SE5	IU		IX	IC	FO	Y
Persicaria maculosa	Spotted Lady's-thumb	-3.0	G3G5		NNA		SE5	IC		IC	IC	FO	
Phragmites australis	Common Reed	-3.0	G5		N5		S4?					GR	Y
Picea glauca	White Spruce	3.0	G5		N5		S5	U			U	TR	
Plantago lanceolata	English Plantain	3.0	G5		NNA		SE5	IC		IC	IC	FO	
Podophyllum peltatum	May-apple	3.0	G5		N5		S5	С		С	С	FO	
Populus deltoides	Eastern Cottonwood	0.0	G5		N5		S5					TR	
Populus tremuloides	Trembling Aspen	0.0	G5		N5		S5	С		С	С	TR	
Prunus cerasifera	Cherry Plum	5.0	GNR		NNA		SE1	IR			IR	SH	
Prunus serotina	Black Cherry	3.0	G5		N5		S5	С		С	С	TR	
Prunus virginiana	Choke Cherry	3.0	G5		NNR		S5	С		С	С	TR	
Pteridium aquilinum	Bracken Fern	3.0	G5		N5		S5	С		С	С	FE	
Quercus rubra	Northern Red Oak	3.0	G5		N5		S5	С		С	С	TR	
Rhamnus cathartica	Common Buckthorn	0.0	GNR		NNA		SE5	IC		IC	IC	SH	Y
Rhus typhing	Staghorn Sumac	3.0	G5		N5		S5	С		С	С	SH	
Ribes americanum	Wild Black Currant	-3.0	G5		N5		S5	C		С	C	SH	
Ribes nigrum	European Black Currant	5.0	GNR		NNA		SE2	IR		-	IR	SH	
Robinia pseudoacacia	Black Locust	3.0	G5		NNA		SE5	IC		IC	IC.	TR	Y
Rosa multiflora	Multiflora Bose	3.0	GNR		NNA		SE5	IC		IX	IC	SH	Y
Rubus alleaheniensis	Allegheny Blackberry	3.0	G5		N5		\$5	C I		C	с.	SH	
Rubus idaeus	Common Red Baspherry	3.0	G5		N5		S5	-		Ū		SH	
Rubus occidentalis	Black Baspherry	5.0	G5		N5		55 55	C		x	C	SH	
Rudbeckia hirta	Black-eved Susan	3.0	65		N5		\$5	C C		r C		FO	
Rumey obtusifolius	Bitter Dock	-3.0	GNR		NNA		SE5					FO	
Rumex pseudonatronatus	Field Dock	0.0	GNR		ΝΝΔ		SEH	1/1			10	FO	
Samhucus racemosa	Red Elderberry	3.0	65		N5		\$5	C		x	C	SH SH	
Securiaera varia	Common Crown wotch	5.0	GNR				SS SEE	IV				50	v
Silene vulgaris	Bladder Campion	5.0	GNR		NNA		SE5				IR	FO	
Sicumbrium alticcimum	Tall Tumble Mustard	3.0					SEE	IV			ID	FO	
Solidago caosia		3.0	G5		NIS		55				IN C	F0	
Solidago canadensis	Canada Goldenrod	3.0	65		N5		55	C		<u> </u>	L	FO	
Sondayo canadensis	Cammon Sour thistle	3.0	CNR				55	IV		IV		50	
Streptopus lanceolatus	Poso Twictod stalk	3.0	G5		NI5		55				10	FO	
Sumplosarpus footidus	Runk Cabhago	5.0	CF				55	0		n C	D	F0	
Tarayasum officinalo	Skulik Cabbage	-5.0	G5 CF				35					F0	
	Vellow Cost's board	5.0	GNR				353					FO	
	Ped Clever	2.0					353					FO	
Trijolium pratense		3.0	GINR				SED					FU	N/
Tussilugo Jarjara		3.0	GINK				355					FU	Y
	American Elm	-3.0	05 CF				35 CF				C C	I K	
viburnum ientago		0.0	65		IN5		35	L		Ľ	L	SH	
Viburnum opulus	Cranberry Viburnum	-3.0	65 GND		N5		55			<u>,</u>		SH	
viburnum opulus ssp. trilobum	Highbush Cranberry	-3.0	GNK		NNK		35	C		X	U	SH	
Vicia cracca	lutted Vetch	5.0	GNR		NNA		SE5	IX		IX	IC	VI	Y
Viola pubescens	Yellow Violet	3.0	G5		N5		\$5	C		C	C	FO	
Viola sororia	Woolly Blue Violet	0.0	G5		N5		\$5	C		C	U	FO	
Vitis riparia	Riverbank Grape	0.0	G5		N5		S5	С		C	С	VW	



Breeding Bird Survey Information Summary Sheet





AVIFAUNAL SURVEY INFORMATION SUMMARY SHEET

Project Name: East RD & Sunset Rd Port Standley

MTE File No.: 48808-100

Collector(s):

WH

	Date	Start Fi	inish	Weather		
Visit 1	1-Jun-22	7:00	8:30 22C	, Wind 2, direct	tion W, CC 0%,	Rain none
Visit 2	16-Jun-22					

Species	Species		Com	m. 1			Com	m. 2			ESA	DIE	
Abbr.	Name	Vi	sit 1	Vis	it 2	Visi	t 1	Vis	it 2	Bank	ESA	PIF	Notes
		Code	No.	Code	No.	Code	No.	Code	No.	Rank	Status	Status	
TUVU	Turkey Vulture			OB	1					S5			
SOSPR	Osprey			SM	3					S5			
DOWO	Downy Woodpecker			VO	1					S5			
GCFL	Great Crested Flycatcher	SM	1							S4	-		
EAKI	Eastern Kingbird			VO	1					S4		RC	
AMCR	American Crow	Ρ	4	OB,NU	2					S5			
HOWR	House Wren	SM	1	SM	1					S5			
EABL	Eastern Bluebird	SM	2							S5	-		
AMRO	American Robin			FY	4					S5			
GRCA	Gray Catbird	SM	3	SM	2					S4			
CEDW	Cedar Waxwing	SH	2	VO	5					S5			
YWAR	Yellow Warbler	SM, T	5	SM, T	4					S5			
AMRE	American Redstart	SM	1	SM	1					S5			
COYE	Common Yellowthroat	SM	3							S5	-		
CHSP	Chipping Sparrow	SM	3							S5			
SOSP	Song Sparrow	SM	2							S5			
NOCA	Northern Cardinal	P, VO	5	SM	3					S5			
INBU	Indigo Bunting	Р	4	SM	3					S4			
RWBL	Red-winged Blackbird	SM	3	VO	2					S4			
COGR	Common Grackle	Р	3	OB	2					S5			
BHCO	Brown-headed Cowbird	Р	3	Р	2					S4			
BAOR	Baltimore Oriole	SM	1							S4		RC,RS	
AMGO	American Goldfinch	Р	2	SM	4					S5			

Breeding Bird - Possible

SH=Suitable Habitat SM=Singing Male

Breeding Bird - Probable

T=Territory A=Anxiety Behaviour D=Display N=Nest Building P=Pair V=Visiting Nest

Breeding Bird - Confirmed

DD=Distraction NE=Eggs AE=Nest Entry NU=Nest Used NY=Nest Young FY=Fledged Young FS=Food/Faecal Sack

Other Wildlife Evidence

OB=Observed DP=Distinctive Parts TK=Tracks VO=Vocalization HO=House/Den FE=Feeding Evidence CA=Carcass Fy=Eggs or Young SC=Scat SI=Other Signs (specify)



Significant Wildlife Habitat (SWH) Table



ELCs:

- Subject Lands: Mineral Cultural Meadow (CUM1)
- Adjacent Lands: Swamp Thicket (SWT), Mineral Cultural Thicket (CUT1) and Mineral Cultural Woodland (CUW1)

Seasonal Concentration of Animals

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Waterfowl Stopover and Staging Areas (Terrestrial)	CUM1 and CUT1	- Large fields with abundant sheet water in spring not available.	No	 Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". Any mixed species aggregations of 100 or more individuals required. The flooded field ecosite habitat plus a 100-300m radius, dependent on local site conditions and adjacent land use is the significant wildlife habitat. Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). 	No
Waterfowl Stopover and Staging Areas (Aquatic)	-	- Marsh habitat is located to the northwest of the Subject Lands. The marsh area adjacent to the Subject Lands is approximately 20 m wide with no open water available as required for SWH No watercourses present within the Subject Lands.	No	 Studies carried out and verified presence of: Aggregations of 100 or more of listed species for 7 days, results in >700 waterfowl use days. Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH The combined area of the ELC ecosites and a 100m radius area is SWH Wetland area and shorelines associated with sites identified within the SWHTG are significant wildlife habitat. Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). 	No

Shorebird Migratory Stopover Area	-	- No beach areas, bars, seasonally flooded, muddy and un-vegetated shoreline habitat available within the Subject Lands.	No	 Studies confirming: Presence of 3 or more of listed species and >1000 shorebird use days during spring or fall migration period (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period). Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". 	No
Raptor Wintering Area	CUM1, CUT1 (Adjacent) and CUW1 (Adjacent)	- Woodlands are cultural (not FOD, FOM); no combination of forest and fields >20 ha present.	No	 Studies confirm the use of these habitats by: One or more Short-eared Owls or; One or more Bald Eagles or; At least 10 individuals and two of the listed hawk/owl species. To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". 	No
Bat Hibernacula	-	- No suitable underground features present.	No	 All sites with confirmed hibernating bats are SWH. The area includes 200m radius around the entrance of the hibernaculum for most development types and 1000m for wind farms Studies are to be conducted during the peak swarming period (Aug–Sept). Surveys should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects" 	No
Bat Maternity Colonies	-	No qualifying ELC communities on Subject Lands or adjacent lands	No	 Maternity Colonies with confirmed use by; >10 Big Brown Bats >5 Adult Female Silver-haired Bats The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies. Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects" 	No

Turtle Wintering Areas	SWT (Adjacent)	 No suitable over-wintering sites (permanent water bodies, large wetlands, bogs, fens, etc.) within the Subject Lands. Wetland on Adjacent Lands consists of marsh habitat and does not appear to contain deep pools or open water. 	No	 Presence of 5 over-wintering Midland Painted Turtles is significant. One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. The mapped ELC Ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deepwater pool where the turtles are over wintering is the SWH. Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept-Oct) or spring (Mar-May). Congregation of turtles is more common where wintering areas are limited and therefore significant. 	No
Reptile Hibernaculum	All other than really wet	- No features indicative of hibernation sites (bedrock fissures, rock piles, burrows) present.	No	 Studies confirming: Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. Near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct). Note: If there are Special Concern Species present, then site is SWH. The feature in which the hibernacula is located plus a 30 m radius area is SWH. 	No
Colonially- Nesting Bird Breeding Habitat (Bank/Cliff)	CUM1 and CUT1 (Adjacent)	- No exposed soil banks, cliff faces, sandy hills, borrow pits, steep slopes, or other suitable habitat present.	No	 Studies confirming: Presence of 1 or more nesting sites with 8cxlix or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. A colony identified as SWH will include a 50m radius habitat area from the peripheral nests. Field surveys to observe and count swallow nests are to be completed during the breeding season. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". 	No
Colonially- Nesting Bird Breeding Habitat (Trees/Shrubs)	-	- No heron nesting sites/colonies present in the area by LIO wildlife values area mapping.	No	 Studies confirming: Presence of 2 or more active nests of Great Blue Heron or other listed species. The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH. Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April-August) or by evidence such as the presence of fresh guano, dead young and/or eggshells. 	No

Colonially- Nesting Bird Breeding Habitat (Ground)	CUM1 and CUT1 (Adjacent)	 No islands, peninsulas, or low bushes close to streams/ditches are present. No nesting sites for Ring-billed Gull or Herring Gull identified in the area by LIO wildlife values area mapping. 	No	 Studies confirming: Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern. Presence of 5 or more pairs for Brewer's Blackbird. Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH. Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". 	No
Migratory Butterfly Stopover Areas	CUM1 and CUT1 (Adjacent)	 A butterfly stopover area will be >10 ha in size with a combination of forest (FOD) and field (CUM/CUT), and be located within 5 km of Lake Erie or Lake Ontario. Criteria not met due to the size and lack of forested ELC codes in the Study Area. 	No	 Studies confirm: The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur. Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant. 	No
Land Bird Migratory Stopover Areas	CUW1 (Adjacent)	- Woodlots and forest fragments are found within the Adjacent Lands and are located within 5 km of Lake Erie.	Yes (Adjacent)	 Studies confirm: Use of the habitat by >200 birds/day and with >35 spp. with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant. Studies should be completed during spring (Mar to May) and fall (Aug-Oct) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" 	Candidate (Adjacent)
Deer Winter Congregation Areas	-	 No woodlots >100 ha in size. No White-tailed Deer wintering areas identified in the area by LIO wildlife values area mapping. 	No	 Studies confirm: Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF. Use of the woodlot by whitetailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF. Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques, ground or road surveys. or a pellet count deer density survey. 	No

Rare Vegetation Communities

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirme d SWH
Cliffs and Talus Slopes	-	Not present.	No	Confirm any ELC Vegetation Type for Cliffs or Talus Slopes.	No
Sand Barren	-	Not present.	No	 Confirm any ELC Vegetation Type for Sand Barrens. Site must not be dominated by exotic/introduced species (<50% vegetative cover exotic sp.). 	No
Alvar	-	Not present.	No	 Field studies that identify 4 of the 5 Alvar Indicator Species at a Candidate Alvar site is significant. Site must not be dominated by exotic/introduced species (<50% vegetative cover exotic sp.). The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses. 	No
Old Growth Forest	-	Not present.	No	 Field Studies will determine: If dominant trees species are >140 years old, then the area containing these trees is SWH. The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present) The area of forest ecosites combined or an eco-element within an ecosite that contain the old growth characteristics is the SWH. Determine ELC vegetation types for the forest area containing the old growth characteristics. 	No
Savannah	-	Not present.	No	 Field studies confirm one or more of the Savannah indicator species listed in Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 7E should be used. Area of the ELC Ecosite is the SWH. Site must not be dominated by exotic/introduced species (<50% vegetative cover exotic sp.). 	No
Tallgrass Prairie	-	Not present.	No	 Field studies confirm one or more of the Prairie indicator species listed in Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 7E should be used. Area of the ELC Ecosite is the SWH. Site must not be dominated by exotic/introduced species (<50% vegetative cover exotic sp.). 	No
Other Rare Vegetation	-	Not present.	No	 Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG. Area of the ELC Vegetation Type polygon is the SWH. 	No

Specialized Habitats of Wildlife considered SWH

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Waterfowl Nesting Area	SWT (Adjacent)	 Wetland found on Adjacent Lands is considered swamp and may contain wetlands suitable for waterfowl nesting. However, the wetland is bordered by roads/driveways and would not provide suitable adjacent upland nesting habitat. No suitable habitat within the Subject Lands. 	No	 Studies confirmed: Presence of 3 or more nesting pairs for listed species excluding Mallards, or; Presence of 10 or more nesting pairs for listed species including Mallards. Any active nesting site of an American Black Duck is considered significant. Nesting studies should be completed during the spring breeding season (April-June). Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest. 	No
Bald Eagle and Osprey Nesting, Foraging, Perching	-	 Bald Eagle was not identified by NHIC in the atlas square that includes the Subject Lands. Bald Eagle and Osprey were not observed in the 2001-2005 OBBA records in the general area of the Subject Lands. No Osprey feeding or resting areas identified in the Study Area on LIO wildlife values mapping. 	No	 Studies confirm the use of these nests by: One or more active Osprey or Bald Eagle nests in an area. Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, maintaining undisturbed shorelines with large trees within this area is important. For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat. To be significant a site must be used annually. When found inactive, the site must be known to be inactive for >3 years or suspected of not being used for >5 years before being considered not significant. Observational studies to determine nest site use, perching sites and foraging areas need to be done from early March to mid-August. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". 	No

Woodland Raptor Nesting Habitat	-	- No natural or conifer plantation woodlands/forest stands >30ha with >4ha of interior habitat.	No	 Studies confirm: Presence of 1 or more active nests from species list is considered significant. Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha area of habitat is the SWH. (the 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest) Barred Owl – A 200m radius around the nest is the SWH. Broad-winged Hawk and Coopers Hawk – A 100m radius around the nest is SWH. Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. Conduct field investigations from early March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. 	No
Turtle Nesting Areas	-	 No suitable nesting habitat found within Study Area. The Subject and Adjacent Lands are bordered by multiple roads which is not favourable for nesting. 	No	 Studies confirm: Presence of 5 or more nesting Midland Painted Turtles. One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH. Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat. Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. 	No
Springs and Seeps	-	- No seeps or springs observed within the Subject Lands.	No	 Field Studies confirm: Presence of a site with 2 or more seeps/springs should be considered SWH. The area of a ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation of the habitat. 	No

Amphibian Breeding Habitat (Woodland)	-	- Adjacent Lands contain a wetland (swamp) that is within 120 m of a woodland ecosite.	Yes (Adjacent)	 Studies confirm; Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Code 3. A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. The habitat is the wetland area plus a 230m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat 	Candidate (Adjacent)
Amphibian Breeding Habitat (Wetlands)	-	- The Adjacent Lands contain part of an evaluated wetland that is larger than 500 m ² but this feature is within 120 m of woodland	No	 Studies confirm: Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3. or; Wetland with confirmed breeding Bullfrogs are significant. The ELC ecosite wetland area and the shoreline are the SWH. A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. 	No
Woodland Area- Sensitive Bird Breeding Habitat	-	 No large mature (>60 years old) forest stands or woodlots >30 ha are present within the Subject Lands. 	No	 Studies confirm: Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. Conduct field investigations in spring and early summer when birds are singing and defending their territories. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". 	No

Habitats of Species of Conservation Concern considered SWH

Wildlife Habitat	ELC Codes Triggers	Candidate Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Marsh Breeding Bird Habitat	SWT (Adjacent)	- The Swamp (Adjacent) may provide suitable habitat for Green Heron.	Swamp (Adjacent) provide suitable habitat reen Heron.Yes (Adjacent)• Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or breeding by any combination of 4 or more of the listed species. • Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. • Area of the ELC ecosite is the SWH. • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects".		Candidate (Adjacent)
Open Country Bird Breeding Habitat	CUM1	- Natural and cultural fields >30 ha are not present.	No	 Field studies confirm: Presence of nesting or breeding of 2 or more of the listed species. A field with 1 or more breeding Short-eared Owls is to be considered SWH. The area of SWH is the contiguous ELC ecosite field areas. Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. Evaluation methods to follow "Bird and Bird Habitats: 	
Shrub/Early Successional Bird Breeding Habitat	CUT1 (Adjacent)	- No large fields succeeding to shrub and thicket habitats >10 ha in size are present.	No	 Field Studies confirm: Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species. A habitat with breeding Yellow-breasted Chat or Golden- winged Warbler is to be considered SWH. The area of the SWH is the contiguous ELC Ecosite field/thicket area. Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". 	No

Terrestrial Crayfish	SWT (Adjacent)	- The adjacent wetland may provide suitable habitat for Terrestrial Crayfish.	Yes (Adjacent)	 Studies Confirm: Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. Area of ELC ecosite or an eco-element area of meadow marsh or swamp within the larger ecosite area is the SWH. Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult. 	Candidate (Adjacent)
Special Concern and Rare Wildlife Species (NHIC and MNRF pre- consultation)	-	 Site pre-screening identified several Species of Conservation Concern (SOCC) as potentially present within the Study Area. These include Bald Eagle, Broad Beech Fern, Common Hoptree, Crooked- stem Aster, Eastern Ribbonsnake, Eastern Wood-Pewee, Horned Grebe, Monarch, Snapping Turtle, and Wood Thrush. The Adjacent Lands, including the wetland to the northwest, were not thoroughly investigated for potential Special Concern or rare wildlife. 	Yes (Adjacent)	 Studies Confirm: Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat or foraging habitat. No SOCC and no habitat for SOCC were observed during targeted studies on the Subject Lands or the adjacent woodland. Adjacent Lands across Sunset Drive were not investigated in detail and may provide habitat for: Broad Beech Fern, Common Hoptree, Crooked-stem Aster, Eastern Ribbonsnake, and Monarch. 	Candidate (Adjacent)

Animal Movement Corridors

Wildlife Habitat	ELC Codes Triggers*	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Amphibian Movement Corridors	-	- Movement corridors are determined when there is confirmed amphibian breeding habitat in wetlands. No wetland amphibian breeding SWH has been confirmed.	No	 Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant. Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m. Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat. 	No

SWH exceptions

Wildlife Habitat	Ecosites	Habitat Criteria and Information	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Bat Migratory Stopover Area	No triggers	- The site is not near Long Point.	No	• The confirmation criteria and habitat areas for this SWH are still being determined.	No



Species at Risk (SAR) Habitat Requirement Screening



Table 1. Habitat potential for Threatened and Endangered species based on satellite photo interpretation, background data review and MTE field investigations in spring 2022.

Species	SARO List Status	Habitat Requirements	Suitable Habitat Present on the Subject Lands?	Suitable Habitat Present on the Adjacent Lands?	Rationale and Field Observations
Acadian Flycatcher Empidonax virescens	END	Typically found in mature, shady forests with ravines, or in forested swamps with lots of maple and beech trees. Nest placement near the tip of a lower limb on a tree. Range: Nests only in southwestern Ontario, mostly in large forest and forested ravines near the shore of Lake Erie. (6E(1), 7E).	No	No	The Subject Lands and Adjacent Lands do not contain mature, shady forest ravines or large forested swamps (wetland is 15-25m wide). No Acadian Flycatcher were observed during targeted field investigations within the Subject Lands. The cultural woodland was included as part of all field investigations. The natural heritage features on the northern side of Sunset Drive were not investigated.
American Badger (SW Ontario population) Taxidea taxus jacksoni	END	Variety of habitats including tall grass prairies, sand barrens, open grassland, and farmland. Range: Southwestern Ontario, close to Lake Erie in the Norfolk and Middlesex area. Northwestern population in Thunder Bay and Rainy River Districts. (7E(2,5)).	Yes	Yes	The Subject Lands and Adjacent Lands both contain grassland and are located near the shore of Lake Erie. No American Badger were observed during targeted field investigations within the Subject Lands or the adjacent cultural woodland.
American Chestnut Castanea dentata	END	Typically, habitat is upland deciduous forests on moist to well drained, sandy acidic soils. Occasionally occurs on heavy soils. Range: Restricted primarily to southwestern Ontario between Lakes Erie and Huron. (7E)	No	Yes	The Subject Lands does not contain any forested area. The Adjacent Lands do include forests that may provide suitable habitat. No American Chestnut were observed during field investigations within the Subject Lands or the adjacent cultural woodland.
American Ginseng	END	Grows in rich, moist, undisturbed and relatively mature deciduous woods. However, some populations are found in White Cedar or Hemlock forests/swamps. The habitat also requires neutral soil (over limestone or marble bedrock) and low levels of light penetration at the ground level.	No	No	The Subject and Adjacent Lands do not include mature deciduous woods or swamp forests with a closed canopy. No American Ginseng were observed during field investigations within the Subject Lands or the adjacent cultural woodland.

Butternut Juglans cinerea	END	Primarily occurs in neutral to calcareous soils (pH 5.5-8), and regions with underlying limestone. Optimal abundance in rich well-drained mesic loams in floodplains, streambanks, terraces, and ravine slopes. Range: Found throughout the southwest, north to the Bruce Peninsula, and south of the Canadian Shield.	No	Yes	The Subject Lands do not include floodplains, streambanks, terraces, or ravine slopes. The Adjacent Lands do include streambanks, floodplains, and ravine slopes that may provide suitable habitat. No Butternut were observed during field investigations within the Subject Lands. Three Butternut were found in the adjacent cultural woodland more than 100 m from the Subject Lands.
Eastern Prickly-pear Cactus Opuntia cespitosa	END	Grows in dry sandy areas which are in early stages of succession (sandy ridges or sandy dunes). Range: Restricted to two small locations in extreme southwestern Ontario along the north shore of Lake Erie.	No	No	The Subject Lands and Adjacent Lands do not provide dry sandy areas that are required for habitat. No Eastern Prickly-pear Cactus were observed during field investigations within the Subject Lands or the adjacent cultural woodland.
Massasauga (Carolinian population) Sistrurus catenatus pop. 2	END	Many habitats including tall grass prairies, bogs, marshes, shorelines, forests, and alvars. Require open areas. Hibernate underground in crevices in bedrock, sphagnum swamps, tree root cavities, and animal burrows above the water table. Range: Two small populations in the Wainfleet Bog on the northeast shore of Lake Erie and near Windsor. (5E(2,3,4,7,8), 6E (2,4,5,6,9,14), 7E(5)).	No	No	The Subject Lands and Adjacent Lands are outside of the Massasauga (Carolinian population) range. No Massasauga were observed during field investigations within the Subject Lands or the adjacent cultural woodland.
Northern Bobwhite Colinus virginianus	END	Live in savannahs, grasslands, around abandoned farm fields, along brushy fencerows, well-drained sandy or loamy soils, and pond edges. Range: Only found in southern Ontario; natural populations likely restricted to Walpole Island and adjacent mainland. (6E(1,15), 7E).	No	No	The Subject Lands and Adjacent Lands are outside of the Northern Bobwhite range. No Northern Bobwhite were observed during targeted field investigations within the Subject Lands or the adjacent cultural woodland
Red-headed Woodpecker Melanerpes erythrocephalus	END	Require mature lowland and upland deciduous woodlands for breeding habitat. Found in a variety of habitats, including oak and beech forests, forest edges, orchards, pastures, riparian forests, roadsides, etc. Often found in parks, golf courses, and cemeteries due to the dead trees for perching and nesting. Range: Across southern Ontario; widespread but rare.	No	Yes	The Subject Lands lack suitable habitat as they do not contain breeding habitat (woodlands) for the species. The Adjacent Lands do contain deciduous woodlands that may provide suitable habitat for Red-headed Woodpecker breeding. No Red-headed Woodpecker were observed during targeted field investigations within the Subject Lands or the adjacent cultural woodland.

Spiny Softshell Apalone spinifera	END	Highly aquatic, rarely traveling far from water. Primarily in rivers and lakes but also creeks, ditches, and ponds near rivers. Require open sand or gravel nesting areas, shallow muddy or sandy areas to bury in, deep pools for hibernation, areas for basking, and food availability.	No	No	The Subject and Adjacent Lands do not contain any rivers, lakes, or watercourses near rivers. No Spiny softshell were observed during field investigations within the Subject Lands or the adjacent cultural woodland.
Yellow-breasted Chat Icteria virens	END	Lives in thickets and scrub, especially areas where clearings have become overgrown. Nests above ground in bush, vine, etc. Range: Southwestern Ontario populations concentrated in Point Pelee and Pelee Island in Lake Erie. (6E(1,5,9,10,15), 7E)	No	No	Yellow-breasted Chat does not reliably breed in Ontario outside Point Pelee and Pelee Island. No Yellow-breasted Chat were observed during targeted field investigations within the Subject Lands or the adjacent cultural woodland.
Bank Swallow Riparia riparia	THR	Nest in burrows in natural and artificial settings where there are vertical faces in silt and sand deposits. Many found along rivers and lakes, but also in active sand and gravel pits. Range: Found across southern Ontario, sparse in northern Ontario. Largest populations found along Lake Erie and Lake Ontario shorelines, and along the Saugeen River.	No	No	The Subject Lands and Adjacent Lands do not contain any vertical faces required for Bank Swallows to nest. No Bank Swallow were observed during targeted field investigations within the Subject Lands or the adjacent cultural woodland.
Barn Swallow Hirundo rustica	THR	Found nesting in close association with human rural settlements. Forage in various types of open habitat including grassy fields, pastures, agricultural fields and farms, lake and river shorelines, wetlands, and clearings. Range: Throughout southern Ontario and as far north as Hudson Bay.	Yes	Yes	The Subject and Adjacent Lands do contain human-made structures that are required for nesting No Barn Swallows were observed during targeted field investigations within the Subject Lands or the adjacent cultural woodland. No Barn Swallow nests were observed on buildings found on the Subject Lands.
Bobolink Dolichonyx oryzivorus	THR	Found in large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields, marshes. Requires tracts of grassland >50ha. Range: Widely distributed throughout most of the province south of the boreal forest. May be found in the north where suitable habitat exists.	No	Yes	The Subject Lands are fragmented from nearby meadow and abandoned agricultural fields by Sunset Drive and are too small to support breeding by Bobolink. The Adjacent Lands contain larger areas of open grasslands and meadows that may provide suitable habitat for Bobolink. No Bobolink were observed during targeted field investigations within the Subject Lands or the adjacent cultural woodland.

Chimney Swift Chaetura pelagica	THR	Commonly found in urban and rural areas near buildings. Nest in hollow trees, crevices of rock cliffs, and chimneys. Range: Estimated 7500 breeding individuals in Ontario; most widely distributed in the Carolinian south and southwest. (2W, 3E, 3W,3S,4E,4W,4S,5E,5S,6E,7E).	No	Yes
Eastern False Rue-anemone Enemion biternatum	THR	Found in deciduous forests and thickets with rich, moist soil, wooded slopes and valleys, and river floodplains. Frequently found in close proximity to watercourses within mature forests. Range: Believed to occupy 6 places in Carolinian southwestern Ontario. (7E(2,6))	No	Yes
Eastern Meadowlark Sturnella magna	THR	Breeds mostly in moderately tall grasslands (native prairies and savannahs), also non-native pastures, hayfields, herbaceous fencerows, roadsides, orchards, airports, shrubby overgrown fields, or other open areas. Range: Primarily found south of the Canadian Shield, but also inhabits Lake Nipissing, Timiskaming, and Lake of Woods areas. (3E, 4E, 5E, 5S, 6E, 7E).	No	Yes
Louisiana Waterthrush Parkesia motacilla	THR	Found in steep, forested ravines with fast-flowing streams. Prefers running water, especially clear, coldwater streams. Less frequently found in heavily wooded, deciduous swamps with large pools of open water. Nests on ground. Range: Breeds only in southern Ontario, along Niagara Escarpment, woodlands along Lake Erie, and other scattered locations. (5E(11), 6E(1,2,5,6,9,10,22), 7E).	No	No

References

- Cadman, M. D., D.A. Sutherland, G.G. Beck, D. Lepage, A.R. Couturier. 2007. Atlas of the Breeding Birds of Ontario, 2001-2005. (eds) Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, xxii + 706pp
- COSEWIC. 2010a. COSEWIC assessment and status report on the Acadian Flycatcher, Empidonax virescens, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa, Ontario. Electronic Document: https://publications.gc.ca/collections/collection_2011/ec/CW69-14-5-2010-eng.pdf Last accessed: April 28, 2022.
- COSEWIC. 2010b. COSEWIC assessment and status report on the Bobolink Dolichonyx oryzivorus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa, Ontario. Electronic Document: www.registrelepsararegistry.gc.ca/default_e.cfm. Last accessed: April 28, 2022.

No chimneys or hollow trees are present within the Subject Lands to provide suitable habitat for Chimney Swift. Adjacent Lands may contain chimneys and hollow trees that provide nesting area for the species.
No Chimney Swift were observed during targeted field investigations within the Subject Lands or the adjacent cultural woodland.
No forests or thickets are present within the Subject Lands to provide suitable habitat for the species.
The cultural woodland was included in field investigations and no Eastern False Rue- anemone were observed, but the Adjacent Lands across Sunset Drive do contain deciduous forests and watercourses that may provide suitable habitat.
The Subject Lands are fragmented from nearby meadow and abandoned agricultural fields by Sunset Drive and are too small to support breeding by Eastern Meadowlark. The Adjacent Lands contain larger areas of open grasslands and meadows that may provide suitable habitat for Eastern Meadowlark.
No Eastern Meadowlark were observed during targeted field investigations within the Subject Lands or the adjacent cultural woodland.
No forested ravines, running water, or pools of open water are found within the Subject Lands or Adjacent Lands.
No Louisiana Waterthrush were observed during targeted field investigations within the Subject Lands or the adjacent cultural woodland.

- COSEWIC. 2011a. COSEWIC assessment and status report on the Barn Swallow Hirundo rustica in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa, Ontario. Electronic Document: https://www.sararegistry.gc.ca/virtual sara/files/cosewic/sr barn swallow 0911 eng.pdf. Last accessed: April 28, 2022.
- COSEWIC. 2011b. COSEWIC assessment and status report on the Eastern Meadowlark Sturnella magna in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa, Ontario. Electronic Document: www.registrelepsararegistry.gc.ca/default e.cfm. Last accessed: April 28, 2022.
- COSEWIC. 2011c. COSEWIC assessment and status report on the Yellow-breasted Chat auricollis subspecies Icteria virens auricollis and the Yellow-breasted Chat virens subspecies Icteria virens in Canada. Ottawa, Ontario. Electronic Document: https://wildlife-species.canada.ca/species-risk-registry/virtual sara/files/cosewic/sr paruline polyglotte yellow breasted chat%20 0912 e.pdf. Last accessed: April 28, 2022.
- COSEWIC. 2012a. COSEWIC assessment and status report on the American Badger Taxidea taxus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. Electronic Document: www.registrelepsararegistry.gc.ca/default e.cfm. Last accessed: April 28, 2022.
- COSEWIC. 2012b. COSEWIC assessment and status report on the Massasauga Sistrurus catenatus Great Lakes / St. Lawrence population, Carolinian population in Canada. Ottawa, Ontario. Electronic Document: www.sararegistry.gc.ca/virtual sara/files/cosewic/sr Massasauga 1013 e.pdf. Last accessed: April 28, 2022.
- COSEWIC. 2013. COSEWIC Assessment and Status Report on the Bank Swallow Riparia riparia in Canada. Ottawa, Ontario. Electronic Document: https://www.canada.ca/en/environment-climate-change/services/species-risk-publicregistry/cosewic-assessments-status-reports/bank-swallow.html. Last accessed: April 28, 2022.
- Falconer, M., K. Richardson, A. Heagy, D. Tozer, B. Stewart, J. McCracken, and R. Reid, 2016. Recovery Strategy for the Bank Swallow (Riparia riparia) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. ix + 70 pp.
- Farrar, Joh Laird. 1995. Trees in Canada. Markham: Fitzhenry & Whiteside Limited and the Canadian Forest Service. 168 pp.
- Fitzgerald, T. M., E. van Stam, J. J. Nocera, and D. S. Badzinski. 2014. Loss of nesting sites is not a primary factor limiting northern Chimney Swift populations. Population Ecology 56 (3):507-512. Electronic Document: http://dx.doi.org/10.1007/s10144-014-0433-6. Last accessed: April 28, 2022.
- Ministry of the Environment, Conservation and Parks [MECP]. 2022. Species at Risk in Ontario. Electronic Document: https://www.ontario.ca/page/species-risk-ontario

Zanchetta, C., D. C. Tozer, T. M. Fitzgerald, K. Richardson, and D. Badzinski. 2014. Tree cavity use by Chimney Swifts: implications for forestry and population recovery. Avian Conservation and Ecology 9(2): 1. http://dx.doi.org/10.5751/ACE-00677-090201. Last accessed: April 28, 2022.